

# THE STATUS OF HEPATITIS C VIRUS SEROPOSITIVITY IN CLINICALLY ASYMPOTOMATIC BLOOD DONORS IN A BLOOD BANK OF TERTIARY CARE HOSPITAL

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## ABSTRACT

**Introduction:** Hepatitis means injury to the liver with inflammation of the liver cell. Most common cause of hepatitis in world is hepatitis viruses. Particular, types B and C virus lead to chronic disease in hundreds of millions of people. Hepatitis C virus is mostly transmitted through infective blood and blood products.

**Aim and Objective:** This study done in order to known the status of Hepatitis C virus in clinically asymptomatic blood donors in blood bank of tertiary care hospital.

**Result:** A total of 11333 blood donors were screened in last three years. Out of which 3646 blood units were screened in year 2011, 7 blood units were HCV reactive. Whereas 4266 blood units were screened in 2012, 6 blood units were HCV seropositive and in year 2013 total 3421 blood units were screened, out of which 16 blood units were HCV seropositive. The average prevalence of hepatitis C virus was 0.25%.

**Conclusion:** Blood transfusion is major route for transmission of HCV virus. This virus is greatest concern because of increasing burden of this disease and also life threatening for the recipients. This study is done to aware the public about status of HCV viral disease and prevents it mode of spread.

**Key Words:** Blood donor, Hepatitis C virus, Seropositive

## INTRODUCTION

Hepatitis means injury to the liver with inflammation of the liver cell. The word hepatitis comes from Ancient Greek word hepar meaning liver and Latin itis meaning inflammation. Hepatitis could be self-limiting or can progress to fibrosis, cirrhosis or liver cancer. Most common cause of hepatitis in world is hepatitis viruses. There are five main hepatitis viruses, types A, B, C, D and E. Particular, types B and C lead to chronic disease in hundred millions of people. The hepatitis C virus (HCV) is a spherical, enveloped, single-stranded RNA virus belonging to the Flaviviridae family. Globally prevalence of Hepatitis C virus (HCV) infection is around 3%, with 170 million persons world-wide may be infected with HCV.<sup>[1]</sup> These chronic carriers represent a reservoir for HCV to persist. Hepatitis C virus is mostly transmitted through infective blood and blood products. There is no vac-

cine available yet for HCV. Various author studies were suggest that despite testing of blood units, HCV infection is still a significant problem in all over India. This study was done in order to known the status of Hepatitis C virus in blood donors in blood bank of tertiary care hospital.

## MATERIAL AND METHOD

This study was conducted in the Hospital based blood bank of Rohilkhand medical college and hospital, Bareilly. Three years data were collected from January 1, 2010 to December 31, 2013. For this retrospective study we collect data from blood bank records. Total numbers of 11333 units of blood were collected during this period. As a routine practice, apparently healthy donors were selected after taking proper clinical history and examination. After that every blood units

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were screened for transfusion transmitted infections. Screening of HCV infection was done by ELISA method.

## AIM AND OBJECTIVE

This study done in order to known the status of Hepatitis C virus in clinically asymptomatic blood donors in blood bank of tertiary care hospital.

Kaur et al 2012	1.38%
Deshpande et al 2012	0.22%
Makroo et al 2013	0.39%
Anuradha et al 2014	0.47%
Present study	0.25%

## RESULT

A total of 11333 blood donors were screened in last three years. Out of 3977 are voluntary donors and 7356 were replacement donors. The number of donations approximately equal in number every year. Total 11333 blood units were screened in three year studied, out of which 3646 blood units were screened in year 2011, 7 blood units was HCV reactive. Whereas 4266 blood units were screened in 2012, 6 blood units were HCV seropositive and in year 2013, total 3421 blood units were screened, out which 16 blood units were HCV seropositive. (Table-1)

Table 2 Show the comparison of studies of various authors of different regions of India. This data will help to find out the status of clinically asymptomatic Hepatitis C virus seropositive blood donors in Blood bank. The average prevalence of HCV seropositive blood donors in our study was 0.25%.

**Table 1: Shows distribution of blood bank donors by year's wise, type of donors, HCV reactive units and percentage.**

YEARS	DONATION		Total	HCV Reactive units	%HCV
	Voluntary Donors	Replace- ments Donors			
2011	905	2741	3646	7	0.19%
2012	1438	2828	4266	6	0.14%
2013	1634	1787	3421	16	0.4%
TOTAL	3977	7356	11333	29	0.25%

**Table 2: Years wise comparison of percentage of seropositive Hepatitis C virus blood donors in various author studies.**

Authors	% HCV seropositive blood donors
Gupta et al 2004	1.09%
Bagga et al 2007	0.88%
Panda M et al 2008	1.98%
Arora et al 2010	1.0%
Meena et al 2011	0.57%

## DISCUSSION

Globally prevalence of Hepatitis C virus (HCV) infection is around 3%, with 170 million persons world-wide may be infected with HCV.<sup>[1]</sup> About 20 million people are known to have HCV infection in India and a quarter of them expected to develop chronic liver disease in the next 10-15 years.<sup>[2]</sup> Hepatitis C virus (HCV) is mostly transmitted through infective blood and blood products. There is no vaccine available yet for HCV. The HCV seropositive donors are generally asymptomatic and have no symptoms that obviously relate the liver diseases and escape from routine clinical screening. Two another important short comings of Indian blood banking system responsible for increasing the prevalence of this infection in India. Inspirit of strike law against Professional blood donation it is continues to flourish and another was improper knowledge of public regarding the mode of spread of infection. The present study was conducted to evaluate the seropositivity of the Hepatitis C virus among the clinically asymptomatic blood donors in tertiary care hospital based blood bank.

In this study total of 11333 blood donors were bled in last three years. Out of which 3977 were voluntary donors and 7356 are replacement donors. Most of donors are replacement donors. Year's wise number of donations is almost equal. In year 2011, 3646 donors were bled in blood bank, out of which 7 (0.19%) donors are HCV seropositive. Similarly in year 2012, out of 4266 blood donors, 6 (0.14%) donors are HCV seropositive. Whereas in year 2013, 3421 blood donors were bled, 16(0.4%) donors were HCV seropositive. The average prevalence of HCV seropositive in our study was 0.25%.

In the study of Deshpande R.H et al, total 10, 4925 blood donors were screened in five years period at three different blood banks of Latur. The prevalence of HCV was found to be 0.22% in blood donor.<sup>[3]</sup> Similarly in our study prevalence was 0.25%. A similar studies were carried out by other authors from different state of India (between 2004- 2014) in that of following order .Nalini et al, Bagga P.K et al, M Panda et al, Arora D et al, Meena M et al, Kaur H et al, Makroo et al, Shah et al and Anuradha et al to show the prevalence of HCV infection in blood donors.

Nalini et al studied the prevalence of transfusion transmitted diseases in department of transfusion medicine, Ludhiana. The HCV seropositivity was found to be 483/44064 (1.09%).<sup>[4]</sup> Another author in 2007 studied the seroprevalence of hepatitis C virus in 5000 blood donors in Patiala. Seroprevalence of anti-HCV was 0.88%.<sup>[5]</sup> M Panda et al was conducted a retrospective study in Cuttack. 1.98% of the donors were positive for hepatitis C.<sup>[6]</sup> A study from Hisar, Haryana, reported that total 5849 blood donation, 4010 (68.6%) were replacement donors and 1839 (31.4%) were voluntary donors. Seroprevalance of HCV was 1.0%.<sup>[7]</sup> Monika et al were retrospectively studied the prevalence rates of HCV as 537(0.57%) per 94,716 donations.<sup>[8]</sup> A study done in Amritsar to analyzed the prevalence and trends of the Hepatitis C infection among voluntary and replacement donors at the blood bank. Out of 35793 healthy blood donations, 7089(19.8%) were voluntary donors and 28704 (80.1%) were replacement donors. The average prevalence was found to be 493(1.38%).<sup>[9]</sup> A similar study was conducted by Makroo et al in a hospital based blood bank in north India for a period of 11 years .Total 2, 06,022 blood donors were screened during this period. 0.39% seroreactive for anti-HCV antibodies was found in blood donors.<sup>[10]</sup> Sangita D. Shah et al was studied the increasing trend of HCV reactivity in healthy blood donors and multitransfused thalassemia patients of Gujarat State. Out of 184238 donors, 599 donors were found HCV seropositive and its seroprevalence was found to be 0.32%.<sup>[11]</sup> Another study conducted among Blood Donors in Perambalur, Tamilnadu, the seroprevalence of HCV antigen was found to be (0.47%).<sup>[12]</sup>

## CONCLUSION

Blood transfusion is major route for transmission of HCV virus. This virus is greatest concern because of increasing burden of this disease and also life threatening for the recipients. These Blood donors were generally escape from routine screening in blood banks because of the long range (6-10 weeks) of window period for HCV, during which anti HCV cannot be detected in the blood, second these patients are generally asymptomatic and have no symptoms that obvi-

ously relate to liver disease, third these donors deny any risk factors from the exposure to viral hepatitis during the pre-donation questioning. Therefore in every blood banks proper donor selection, viral agents screening and strictly restricted professional donor is reduced the risk of disease transmission. This study is done to aware the public about status of this viral disease and prevents it mode of spread.

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